

IN THE CLAIMS:

Please amend the claims as indicated below:

1. (original) An apparatus for mounting coupled with a power line carrying a high AC line voltage, the apparatus comprising:

a conductive body having a body capacitance;

a power supply comprising at least two input terminals; a first of said at least two input terminals coupled to said conductive body and a second of said at least two input terminals operative to be coupled to said power line;

electronic circuitry coupled to said power supply;

wherein said power supply is operative to convert power flow between said conductive body and said power line into a supply of power at a voltage substantially lower than said high AC line voltage for operation of said electronic circuitry.

2. (original) The apparatus of claim 1 wherein said voltage substantially lower than said high AC line voltage is below 100 volts DC.

3. (original) The apparatus of claim 1 wherein said electronic circuitry comprises:
a sensor operative to sense at least one parameter.

4. (original) The apparatus of claim 3 wherein said at least one parameter comprises at least one of ambient temperature, internal temperature, temperature of said power line, strain, humidity, elevation, position, ambient light level, air quality, vibration, acceleration, sound level and atmospheric pressure.

5. (original) The apparatus of claim 4 wherein said electronic circuitry further comprises:
a radio frequency transmitter operative to transmit said parameter to a remote device which is not physically coupled to said apparatus.
6. (original) The apparatus of claim 5 wherein said electronic circuitry further comprises:
a radio frequency positioning receiver operative to receive position information and determine the position of said apparatus.
7. (original) The apparatus of claim 5 further comprising:
a directional antenna coupled to said radio frequency transmitter and operative to focus radio frequency energy emanating from said radio frequency transmitter.
8. (original) The apparatus of claim 3 wherein said electronic circuitry further comprises:
a wireless transmitter operative to transmit said parameter to a remote device which is not physically coupled to said apparatus.
9. (original) The apparatus of claim 8 wherein said wireless transmitter is a radio frequency transmitter.
10. (original) The apparatus of claim 8 further comprising:
a directional antenna coupled to said wireless transmitter and operative to focus radio frequency energy emanating from said wireless transmitter.

11. **(original)** The apparatus of claim 8 wherein:
said electronic circuitry further comprises a processor operative to secure data incorporating said parameter; and
said wireless transmitter is operative to transmit said data.
12. **(original)** The apparatus of claim 8 wherein said electronic circuitry further comprises:
a radio frequency positioning receiver operative to receive position information and determine the position of said apparatus.
13. **(original)** The apparatus of claim 1 wherein said electronic circuitry comprises a current sensor operative to sense current flow in said power line.
14. **(original)** The apparatus of claim 13 wherein said current sensor comprises at least one of a Hall effect sensor, a Rogowski coil, a magnetic core current transformer and an optical current transducer.
15. **(original)** The apparatus of claim 13 wherein said current sensor comprises an active current transformer.
16. **(original)** The apparatus of claim 13 further comprising:
at least one analog to digital converter coupled to said current sensor;

a processor coupled to said at least one analog to digital converter and operative to receive digital samples representative of said current flow in said power line from said analog to digital converter; and

a wireless transmitter coupled to said processor and operative to transmit said digital samples to a remote device which is not physically coupled to said apparatus.

17. **(original)** The apparatus of claim 16 wherein said wireless transmitter is a radio frequency transmitter.

18. **(original)** The apparatus of claim 17 further comprising:

a directional antenna coupled to said radio frequency transmitter and operative to focus radio frequency energy emanating from said radio frequency transmitter.

19. **(original)** The apparatus of claim 16 wherein said wireless transmitter is a laser.

20. **(original)** The apparatus of claim 16 wherein said electronic circuitry further comprises:

a radio frequency positioning receiver coupled to said processor, operative to receive position information and determine the position of said apparatus.

21. **(original)** The apparatus of claim 13 further comprising:

at least one analog to digital converter coupled to said current sensor;

a processor coupled to said at least one analog to digital converter and operative to receive digital samples representative of said current flow in said power line from said analog to digital converter;

a time synchronization receiver coupled to said processor; and

wherein said processor is operative to associate at least one timestamp from said time synchronization receiver with said digital samples.

22. (original) The apparatus of claim 21 further comprising a radio frequency transmitter coupled to said processor and operative to transmit said digital samples to a remote device which is not physically coupled to said apparatus.

23. (original) The apparatus of claim 22 wherein said time synchronization receiver further comprises:

a radio frequency positioning receiver operative to receive position information and determine the position of said apparatus.

24. (original) The apparatus of claim 22 further comprising a directional antenna coupled to said radio frequency transmitter and operative to focus radio frequency energy emanating from said radio frequency transmitter.

25. (original) The apparatus of claim 13 wherein said electronic circuitry comprises a voltage sensor operative to sense voltage on said power line.

26. (original) The apparatus of claim 25 wherein said electronic circuitry comprises
at least one analog to digital converter coupled to said voltage sensor and said current sensor; and
a processor coupled to said at least one analog to digital converter and operative to receive digital samples representative of said current flow in said power line and said voltage on said power line from said analog to digital converter.
27. (original) The apparatus of claim 26 wherein said current sensor comprises at least one of a Hall effect sensor, a Rogowski coil, a current transformer and an optical current transducer.
28. (original) The apparatus of claim 26 wherein said current sensor comprises an active current transformer.
29. (original) The apparatus of claim 26 wherein said processor is operative to calculate power flow in said power line using said digital samples.
30. (original) The apparatus of claim 29 further comprising a radio frequency transmitter coupled to said processor and operative to transmit the result of said power flow calculation to a remote device.
31. (original) The apparatus of claim 30 wherein said electronic circuitry further comprises:
a radio frequency positioning receiver coupled to said processor, operative to receive position information and determine the position of said apparatus.

32. (original) The apparatus of claim 30 further comprising a directional antenna coupled to said radio frequency transmitter and operative to focus radio frequency energy emanating from said radio frequency transmitter.

33. (original) The apparatus of claim 26 further comprising a radio frequency transmitter coupled to said processor and operative to transmit said digital samples to a remote device which is not physically coupled to said apparatus.

34. (original) The apparatus of claim 33 wherein said electronic circuitry further comprises a radio frequency positioning receiver coupled to said processor, operative to receive position information and determine the position of said apparatus.

35. (original) The apparatus of claim 33 further comprising a directional antenna coupled to said radio frequency transmitter and operative to focus radio frequency energy emanating from said radio frequency transmitter.

36. (original) The apparatus of claim 26 further comprising:
a time synchronization receiver coupled to said processor; and
wherein said processor is operative to associate at least one timestamp from said time synchronization receiver with said digital samples.

37. **(original)** The apparatus of claim 36 further comprising a radio frequency transmitter coupled to said processor and operative to transmit said digital samples to a remote device which is not physically coupled to said apparatus.

38. **(original)** The apparatus of claim 37 wherein said time synchronization receiver further comprises a radio frequency positioning receiver operative to receive position information and determine the position of said apparatus.

39. **(original)** The apparatus of claim 37 further comprising a directional antenna coupled to said radio frequency transmitter and operative to focus radio frequency energy emanating from said radio frequency transmitter.

40. **(original)** The apparatus of claim 36 wherein said processor is operative to produce power flow data indicative of power flow in said power line using said digital samples.

41. **(original)** The apparatus of claim 40 further comprising a radio frequency transmitter coupled to said processor and operative to transmit said power flow data to a remote device which is not physically coupled to said apparatus.

42. **(original)** The apparatus of claim 41 wherein said radio frequency transmitter is further operative to transmit at least one of said digital samples to said remote device.

43. (original) The apparatus of claim 41 wherein said time synchronization receiver further comprises a radio frequency positioning receiver operative to receive position information and determine the position of said apparatus.

44. (withdrawn) The apparatus of claim 43 102 wherein said conductive body comprises a sphere.

45. (withdrawn) The apparatus of claim 44 where said second of said at least two input terminals comprises a clamp operative to engage said power line.

46. (withdrawn) The apparatus of claim 43 102 wherein said conductive body comprises a cylinder.

47. (withdrawn) The apparatus of claim 43 102 wherein said electronic circuitry comprises at least one processor operative to control the lighting of said light source.

48. (withdrawn) The apparatus of claim 47 wherein said electronic circuitry comprises time synchronization reception circuitry operative to provide an indication of time to said processor; said processor operative to control said lighting based on said indication of time.

49. (withdrawn) The apparatus of claim 48 wherein said time synchronization reception circuitry comprises a GPS receiver.

50. **(withdrawn)** The apparatus of claim 48 wherein said electronic circuitry further comprises a light sensor operative to sense ambient lighting conditions in the vicinity of said apparatus.

51. **(withdrawn)** The apparatus of claim 50 wherein said processor is coupled to said light sensor and said light source; said processor operative to illuminate said light source when said light sensor indicates said ambient lighting conditions are below a threshold.

52. **(withdrawn)** The apparatus of claim 43 102 further comprising an energy storage device coupled to said power supply and operative to supply power to said electronic circuitry when a condition exists such that said electronic circuitry demands more power than said power supply can produce.

53. **(withdrawn)** The apparatus of claim 52 wherein said condition is the illumination of said light source.

54. **(withdrawn)** The apparatus of claim 52 wherein said condition is the failure of said high AC line voltage.

55. **(withdrawn)** The apparatus of claim 52 further comprising:
a processor operative to control the application of charge to said energy storage device.